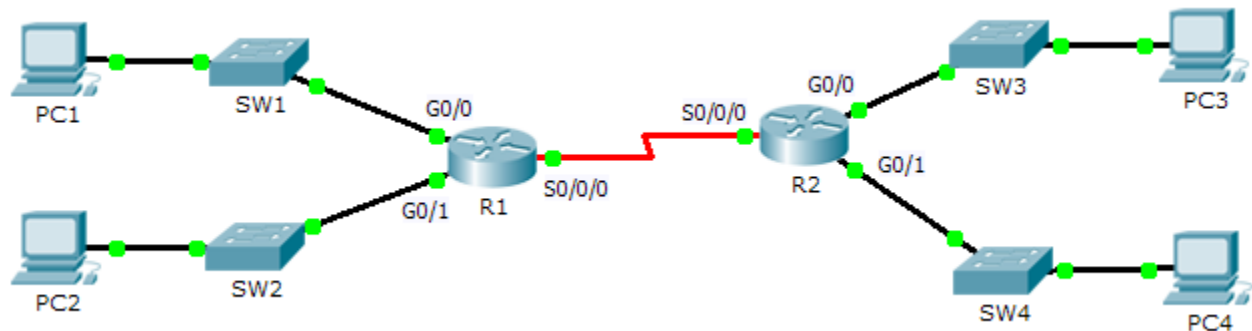


Packet Tracer - Investigating Directly Connected Routes

Topology



Objectives

Part 1: Investigate IPv4 Directly Connected Routes

Part 2: Investigate IPv6 Directly Connected Routes

Background

The network in the activity is already configured. You will log in to the routers and use **show** commands to discover and answer the questions below about the directly connected routes.

Note: The user EXEC password is **cisco** and the privileged exec password is **class**.

Part 1: Investigate IPv4 Directly Connected Routes

Step 1: Use show commands to gather information about the IPv4 directly connected networks.

Enter the following command on **R1**:

```
R1> show ip route ?
```

- What option would be most beneficial in determining the networks assigned to the interfaces of the router?
- Which networks are directly connected on **R1**? Hint: Use the option determined above.

- Which IP addresses are assigned to the LAN interfaces on **R1**?

- d. Which networks are directly connected on **R2**?

- e. Which IP addresses are assigned to the LAN interfaces on **R2**?

Step 2: Verify PC addressing and test connectivity.

- a. Open a command prompt on **PC1**. Issue the command to display the IP settings. Based on the output, would you expect **PC1** to be able to communicate with all interfaces on the router? Provide a short answer describing your expectations.

- b. Open a command prompt on **PC2**. Issue the command to display the IP settings. Based on the output, would you expect **PC2** to be able to communicate with **PC1**? Verify your expectations.

- c. Determine the IP addresses of **PC3** and **PC4**. Record the results and determine if **PC3** and **PC4** are able to communicate.

- d. Test connectivity from **PC1** to **PC3**. Was the test successful?

- e. **Bonus:** Looking at the outputs of the routing tables on **R1** and **R2**, what might indicate a reason for the success or failure of communication between **PC1** and **PC3**?

Part 2: Investigate IPv6 Directly Connected Routes

Step 1: Use show commands to gather information about the IPv6 directly connected networks.

- a. Which IPv6 networks are available on **R1**?

- b. Which IPv6 unicast addresses are assigned to the LAN interfaces on **R1**?

- c. Which IPv6 networks are available on R2?

- d. Which IPv6 addresses are assigned to the LAN interfaces on R2?

Step 2: Verify PC settings and connectivity.

- a. Open a command prompt on **PC1**. Issue the command to display the IPv6 settings. Based on the output, would you expect **PC1** to be able to communicate with all interfaces on the router? Provide a short answer describing your expectations

- b. Open a command prompt on **PC2**. Issue the command to display the IPv6 settings. Based on the output, would you expect **PC2** to be able to communicate with **PC1**? Verify your expectations.

- c. Determine the IPv6 addresses of **PC3** and **PC4**. Record the results and determine if **PC3** and **PC4** are able to communicate.

- d. Test connectivity from **PC1** to **PC3**. Was the test successful?

- e. **Bonus:** What might indicate a reason for the success or failure of communication between **PC1** and **PC3** after looking at the outputs of the IPv6 routing tables on **R1** and **R2**?

Suggested Scoring Rubric

Activity Section	Question Location	Possible Points	Earned Points
Part 1: Investigate IPv4 Directly Connected Routes	Step 1	25	
	Step 2	25	
Part 2: Investigate IPv6 Directly Connected Routes	Step 1	25	
	Step 2	25	
Total Score		100	